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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/870,085 | 05/30/2001 | Hiroyuki Yano | 790001-2004 | 6781 |

20999 7590 04/30/2002

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745 FIFTH AVENUE- 10TH FL.
NEW YORK, NY 10151

EXAMINER

PHAM, THANHHA S

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2813

DATE MAILED: 04/30/2002

Handwritten number 6

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/870,085

Applicant(s)

YANO ET AL.

Examiner

Thanhha Pham

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 7-22 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.


Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Claims 7-22 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 5.

 Applicant's election with traverse of claims 1-6 in Paper No. 5 is acknowledged. The traversal is on the ground(s) that Applicants reserve the right of rejoinder of species A,B,C and D and the restriction is not proper since the search and examination of four species can be made without serious burden. This is not found persuasive because species A, B,C and D are patentably distinct species as set forth in previous Office Action paper No. 4 and action of rejoinder can not be performed on distinct species. Should Applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 US 103(a) of other invention. In addition, since different searches and examinations are required for different species (for example, Species A – class 438/690, Species B – class 438/244), there are serious burdens for examiner to examine all of species.

The requirement is still deemed proper and is therefore made FINAL.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 3 and 5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 3,

Lines 5-7, "after at least one additional step following a step of forming an uneven portion of the target substrate" renders the claim indefinite. It is not clear that "at least one additional step" is actually what step.

With respect to claim 5,

Lines 5-10, "after a step of forming a film of a material providing a source of contamination of the processing machine for applying a predetermining processing to the target substrate including the semiconductor substrate or providing a source of contamination of the semiconductor substrate" renders the claim indefinite. It is not clear that "a predetermining processing" is actually what processing. It is not clear what providing a source of contamination of the semiconductor substrate – the film of the material or the processing machine?

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, as being best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Inaoka et al [US 5,426,073].

Inaoka et al, figs 3's and related text col 1-8, discloses the claimed method of manufacturing a semiconductor device in which a semiconductor element is formed in a semiconductor substrate including a step of selectively grinding or polishing the peripheral portion and the beveled portion on the side of the main surface of a target substrate including a semiconductor substrate to remove contamination formed from deposited films in making the semiconductor device [see col 4-5 for details]

With respect to claim 2, Inaoka et al, fig 3a, teaches that an uneven portion (2-3, poly Si) in the target substrate has been formed prior to selectively grinding or polishing the peripheral portion and the beveled portion on the side of the main surface of the target substrate.

With respect to claim 3-4, Inoaka et al teaches that covering the main surface of the target substrate with a resist film is performed before selectively grinding or polishing the peripheral portion and the beveled portion on the side of the main surface of the target substrate, said step of covering the target substrate with the resist is performed after forming an uneven portion (e.g. poly Si 2-3, fig 3(a)).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Inaoka et al [US 5,426,073] in view of Chou [US 5,578,516].

Inaoka et al, figs 3's and related text col 1-8, discloses the claimed method of manufacturing a semiconductor device comprising forming an uneven portion (2-3 poly Si, fig 3(a)) in a target substrate including a semiconductor substrate; and selectively grinding or polishing the peripheral portion and the beveled portion on the side of the main surface of a target substrate including a semiconductor substrate to remove contamination formed from deposited films in making the semiconductor device [see col 4-5 for details].

Inaoka et al does not expressly teach forming said uneven portion (2-3 poly Si, fig 3(a)) by applying an anisotropically dry etching treatment. Inaoka et al just generally teaches that the uneven portion (2-3 poly Si) is formed by patterning using an etching technique (see col 4 lines 45-50).

However, anisotropically dry etching treatment is a well-known technique for forming the uneven portion. See Chou as an evidence that teaches applying the anisotropically dry etching treatment to form the uneven portion (18, fig 3, col 4 lines 60-54) in the target substrate including the semiconductor substrate. Therefore, it would

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have been obvious for those skilled in the art to apply the anisotropically dry etching as a conventional technique as being claimed in the process of Inaoka et al to form the uneven portion in the target substrate as the design of device is needed.

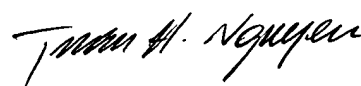
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thanhha Pham whose telephone number is (703) 308-6172. The examiner can normally be reached on Monday-Thursday 8:00 AM - 7:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chaudhuri Olik can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-3432 for regular communications and (703) 308-7725 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thanhha Pham
April 25, 2002



Tuan H. Nguyen
Primary Examiner